

Application Serial No: 10/081,995
Attorney Docket No.: 51965 (ACT-179)

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject matter identified in caption, as amended, in light of the remarks which follow, are respectfully requested.

As correctly noted in the Office Action Summary, claims 1-11 and 14-22 are pending in the application.

Applicant notes with appreciation the allowance of claims 11 and 22, and the indication of allowable subject matter with respect to claim 3.

By the foregoing proposed amendments, claim 1 has been revised to point out that the optical waveguide is a "rib optical waveguide". Similarly, claim 14 has been revised to point out that the formed waveguide is a "rib waveguide". Support can be found at least in section [0090] of applicant's specification. Claim 10 has been revised to point out that the teeth of the comb mask are tapered. Support can be found at least in Figure 7(a) and claim 3. The amendments are believed to place the application in immediate condition for allowance. Accordingly, entry thereof is proper.

Applicant thanks the Examiner for his time and consideration during the telephonic interview of November 17, 2004. During the interview, the art rejections based on Hatakeyama et al (U.S. Patent No. 6,015,976) as well as amendments to the claims were discussed. In addition, applicant explained that the term "optical axis" is well understood in the art, and provided a general definition found for that term (http://www.atis.org/tg2k/_optical_axis.html, copy attached).

Turning now to the final Official Action, claims 1, 2, 4-10, 14-16 and 21 stand rejected under 35 U.S.C. §102(e) as being anticipated by Hatakeyama et al. In addition, claims 17-20 stand rejected under 35 U.S.C. §103(a) as being obvious over Hatakeyama et al. These rejections are respectfully traversed for the following reasons.

Claim 1 sets forth a method for manufacturing an optical device. The method comprises moving a mask situated between a layer of optical waveguide material to be shaped and a source of etchant ions. At least two areas of the optical waveguide material are exposed to variable amounts of etchant ions provided along a selected etching direction to provide a rib optical waveguide having an optical axis non-parallel to the

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selected etching direction and having a thickness that varies along the direction of the optical axis. Independent claims 10, 14 and the dependent claims describe further aspects of the invention.

Based on a complete understanding of the present invention, it is respectfully submitted that the claims as presented above cannot properly be rejected based on the teachings of Hatakeyama et al.

Hatakeyama et al discloses a microfabrication apparatus for processing a fabrication surface of a workpiece for producing a fine structure on the fabrication surface by irradiating the workpiece with an energy beam, and interposing a mask member between the energy beam source and the workpiece (col. 2, lines 23-33).

Hatakeyama et al does not disclose or suggest each feature of applicant's invention. For example, Hatakeyama et al does not disclose or fairly suggest formation of a rib waveguide, as set forth in independent claims 1 and 14. In this regard, applicant respectfully notes that the only mention of the term "waveguide" in Hatakeyama et al is found at column 23, lines 56-64, which refers to Figure 83D. The illustrated waveguide is formed by etching the needle-protrusion structure of Figure 83A to reduce the height of the needle as shown in Figure 83B. When a light source is placed behind the mirror as shown in Figure 83D, the needle-protrusion acts as a waveguide, and the light is scattered in all directions from the tip of the needle protrusion. (See col. 23, lines 43-63). This needle-protrusion waveguide is not fairly suggestive of a rib waveguide as claimed in independent claims 1 and 14.

Further, applicant notes that Hatakeyama et al is not suggestive of independent claim 10. In this regard, Hatakeyama et al does not disclose or suggest etching through a moving comb mask comprising tapered teeth. Claim 10 is believed to be allowable at least for the reasons claim 3 was found to contain allowable subject matter.

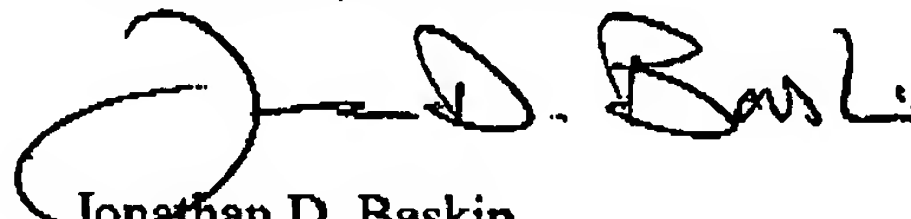
For at least the foregoing reasons, independent claims 1, 10 and 14 and the claims that depend therefrom are believed to be allowable over Hatakeyama. Accordingly, withdrawal of the §102 and §103 rejections based on Hatakeyama et al is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

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If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at her earliest convenience.

Respectfully submitted,



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optical axis

optical axis: 1. Of a refractive or reflective optical element, the straight line that is coincident with the axis of symmetry of the surfaces. *Note:* The optical axis of a system is often coincident with its mechanical axis, but it need not be, *e.g.*, in the case of an off-axis parabolic reflector used to transmit signals to, or receive signals from, a geosynchronous satellite. 2. In a lens element, the straight line which passes through the centers of curvature of the lens surfaces. [JP 1-02] 3. In an optical system, the line formed by the coinciding principal axes of the series of optical elements. [JP 1-02] 4. In an optical fiber, *synonym* fiber axis [*which is the preferred term*].

These definitions were prepared by ATIS Committee T1A1. For more information on the work related to these definitions, please visit the ATIS website.

This HTML version of Telecom Glossary 2K was last generated on February 28, 2001. References can be found in the Foreword.
